

COMPLETE LISTING OF ALL CLAIMS

- 1 Claim 1. (original) A microelectromechanical apparatus comprising:
- 2 a base;
- 3 a flap having a portion coupled to the base so that the flap is movable out of the plane
- 4 of the base from a first angular orientation to a second angular orientation;
- 5 wherein the base has an opening that receives the flap when the flap is in the second
- 6 angular orientation, the opening having one or more sidewalls, wherein at least one of
- 7 the sidewalls contacts a portion of the flap such that the flap assumes an orientation
- 8 substantially parallel to that of the sidewall when the flap is in the second angular
- 9 orientation; and
- 10 a sidewall electrode disposed in one or more of the sidewalls.
- 1 Claim 2. (original) The microelectromechanical apparatus of claim 1 wherein the flap
- 2 further comprises a magnetically active element.
- 1 Claim 3. (original) The microelectromechanical apparatus of claim 2 wherein the
- 2 magnetically active element is a magnetic material.
- 1 Claim 4. (original) The microelectromechanical apparatus of claim 2 wherein the
- 2 magnetically active element is a coil.
- 1 Claim 5. (original) The microelectromechanical apparatus of claim 2 further comprising an
- 2 external magnet.
- 1 Claim 6. (original) The apparatus of claim 1 wherein the flap is connected to the base by
- 2 one or more flexures.
- 1 Claim 7. (currently amended) The apparatus of claim [17] 6 wherein at least one flexure is
- 2 electrically conductive.
- 1 Claim 8. (original) The microelectromechanical apparatus of claim 1 further comprising a
- 2 light-deflecting element disposed on the flap.
- 1 Claim 9. (original) The microelectromechanical apparatus of claim 1, wherein the sidewall
- 2 electrode is electrically isolated from the base.

1 Claim 10. (original) The microelectromechanical apparatus of claim 1 further comprising:
2 a voltage source coupled between the flap and the sidewall electrode to apply an
3 electrostatic force between the sidewall electrode and the flap.

1 Claim 11. (original) The apparatus of claim 10 wherein the flap contains a magnetically
2 active material and the electrostatic force between the sidewall electrode and the flap
3 is sufficient to prevent the flap from changing position in the presence of an applied
4 magnetic field.

1 Claim 12. (original) The apparatus of claim 1 further comprising:
2 an electrode disposed on the base; and
3 a voltage source coupled between the electrode in the base and the flap to apply an
4 electrostatic force between the electrode in the base and the flap.

1 Claim 13. (original) The apparatus of claims 1 where the base is made from a substrate
2 portion of an SOI (silicon-on-insulator) wafer and the flap is defined from a device
3 layer portion of the SOI wafer.

1 Claim 14. (currently amended) The apparatus of claim [[1]] 6 wherein the one or more
2 flexures include one or more torsional beams.

1 Claim 15. (original) The apparatus of claim 1, further comprising one or more conductive
2 landing pads disposed on an underside of the flap wherein the one or more conductive
3 landing pads are electrically isolated from the flap.

1 Claim 16. (original) The apparatus of claim 15, wherein one or more of the conductive
2 landing pads are electrically coupled to a sidewall electrode.

1 Claim 17. (original) The apparatus of claim 15 wherein one or more of the conductive
2 landing pads is electrically coupled to the base.

1 Claim 18. (original) The apparatus of claim 1 wherein the sidewall includes a sidewall
2 electrode and one or more conductive landing pads that are electrically isolated from
3 the sidewall electrode.

1 Claim 19. (original) The apparatus of claim 18 wherein one or more of the landing pads are
2 electrically coupled to the flap.

1 Claim 20. (original) The apparatus of claim 18 wherein the sidewall electrode is electrically
2 isolated from the base.

1 Claim 21. (original) An array of one or more structures, wherein each structure comprises:
2 a base;
3 a flap having a portion coupled to the base so that the flap is movable out of the plane
4 of the base from a first angular orientation to a second angular orientation, the flap
5 containing a reflecting element;
6 wherein the base has an opening with largely vertical sidewalls, at least one of the
7 sidewalls containing an electrode, wherein the sidewalls contact a portion of the flap
8 such that the flap assumes an orientation substantially parallel to that of the sidewall
9 when the flap is in the second angular orientation.

1 Claim 22. (original) An array of claim 21 wherein one or more of the structures includes a
2 sidewall electrode disposed in one or more of the sidewalls.

1 Claim 23. (original) The array of claim 21, wherein the sidewall electrode is electrically
2 isolated from the base.

1 Claim 24. (original) An array of claim 21 wherein the array forms an optical switch.

1 Claim 25. (original) An apparatus comprising:
2 a flap that is movable from a first angular orientation to a second angular orientation;
3 and
4 a magnetic material disposed on the flap, the magnetic material having a stepped
5 pattern.

1 Claim 26. (cancel)